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Development and Accomplishments of Meat Inspection in the U.S.A.

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INTRODUCTION

Meat inspection is the natural child of veterinary medicine; any improvement in the status of the parent automatically is reflected in the welfare of the offspring. Development of both go hand in hand; both have prospered or suffered as the tides of public opinion and social enlightenment have varied. However, it is only within the present century that the imperative requirements for capable veterinary service and adequate meat inspection have been generally recognised and accepted as an integral part of our economic insurance and as an essential cog in any public programme.

HISTORY [1]

The origin of meat inspection is lost in antiquity. The Mosaic doctrines on clean and unclean flesh are considered the first recorded evidence of systematic meat inspection; thus since Moses flourished in the 15th century B.C., thirty-five centuries shortly will have passed since the transmissibility of animal disease to human beings was officially recognised. The laws of Moses, if not complete, are exact from a sanitary point of view. Specified internal organs were burned. Meat that "touched unclean things"; flesh on the second and third days after slaughter; the flesh of swine, shellfish and crawling creatures in general, were officially declared as unfit for human consumption. The clothing of a person who had handled carcases of the "unclean" had to be washed before the wearer could resume his place among the people. The primary requirement that animals brought to the tabernacle "must be without blemish" completes the comparison of the system with our *ante-* and *post-mortem* inspections in the markets of to-day. The Biblical story of Moses does not describe the delegate who selected healthy animals but some expert functionary must have been charged with that difficult duty.

The restrictions established by Moses are understandable when it is considered that the insanitary hog lot may serve as a source for tapeworm and trichina infestation, for tuberculosis, erysipelas, salmonella and pasteurella infections. Oyster beds contaminated with human excrement are excellent carriers of typhoid fever; the menace of cysticerci and other infections and infestations among pastoral people before the days of the toilet may well be imagined. Since Moses lived approximately five or six centuries after Hammurabi had established rigid laws covering clinical veterinary medicine, it is obvious the intervening centuries were characterised by progress.

The flocks and herds of the Egyptians were completely wiped out by the "Fifth Plague" in 1451 B.C., while those of the Israelites escaped. Divine displeasure against Pharaoh IV, enemy of the favoured people, is the Biblical explanation. More reasonable is the rationale that Moses practised simple rules of livestock sanitation typical of his understanding and knowledge of hygiene, while Pharaoh IV, King of Egypt, maintained but a miserable animal industry, characteristic of those dynasties which gradually brought that nation to inevitable extermination.

From the vague events of prehistoric times and the Mosaic doctrines there followed a period of steady advancement in general veterinary medicine until the blight of the dark ages descended upon the civilised world and brought about ten centuries of suspended animation in all science, when to digress from the accepted standards of thought was heresy.

THE REAWAKENING [1]

The "Veterinary Renaissance" dates from the transition of the practice of veterinary medicine from sacramental patterns to rational therapeutics and surgery that the Greeks and Romans had left with the coming of the Middle Ages. The gradual elimination of superstition and fear from the therapeutics of the time brought about the rebirth of veterinary literature and later the founding of veterinary schools in all the countries of the world. It was but a short step from the appearance of reliable books to the founding of an educational system, the development of sound livestock sanitary regulations and the production of literature that kept abreast of the current advancements in chemistry, medicine and surgery. The actual escape of veterinary medicine from its imprisonment occurred in the 18th century with the founding of recognised veterinary schools in various parts of Europe, beginning with the Royal Veterinary School of Lyons, France, in 1761.

The plan, still extant in the United States at that time, was to write books and teach certain of the people, such as herdsmen, farriers and stablemasters, the veterinary art. During the years a colossal livestock industry developed but veterinary science officially remained unrecognised and unknown. The greater number of practitioners were dissolute and disreputable charlatans who preyed upon their clients by the utilisation of nauseating poultices, secret recipes and barbarous surgery. The dark ages in veterinary medicine in the United States came to an end about 1850 when the seeds for the establishment of veterinary colleges were initially planted.

ESTABLISHMENT OF THE BUREAU OF ANIMAL INDUSTRY [1, 4]

The first contagious disease on which public attention was focused was contagious pleuropneumonia, which entered the United States with imported cattle in 1843. The claim has been made that this disease led to the establishment of the Bureau of Animal Industry (under the supervision of the United States Department of Agriculture); however, since it was 41 years later that the B.A.I. was founded, it would appear obvious that other factors were involved. Probably tick fever, glanders, trichinosis and hog cholera, together with the growing influence of the veterinary profession and the increasing value and importance of the livestock industry, stimulated Congress to provide a Bureau of Animal Industry and to place it under the directorship of a qualified veterinarian on May 29th, 1884.

During the years that followed the Bureau of Animal Industry became organised on broad lines as its usefulness and sphere of influence increased. Its segregation into divisions includes: Pathological; Zoological; Animal Nutrition; Tuberculosis Eradication; Animal Husbandry; Meat Inspection; Field Inspection; Tick Eradication and Special Diseases, Virus-Serum Control, and Packers and Stockyards. The names of these divisions indicate their major activities. In 1931 the Bureau had 4,286 regular civil service employees, about 92 per cent. being veterinarians. In America, the livestock industry could not have reached or maintained its present position of pre-eminence without the efforts and constructive work of the Bureau, whose major accomplishments include:—

(*a*) Eradication of contagious pleuropneumonia.

(*b*) The discovery of the nature of tick fever, its vector and a practical method of its eradication.

(*c*) The discovery of the cause of hog cholera and the development of a successful method of permanent immunisation.

(*d*) The rapid eradication of every outbreak of foot-and-mouth disease that has occurred in the United States.

(*e*) The virtual eradication of tuberculosis of cattle. The occurrence of this disease is now less than one-half per cent. of the cattle population in each state of the union.

(*f*) The establishment and maintenance of a national meat inspection service, so that all meat food products before being permitted to enter interstate traffic must be "U.S. Inspected and Passed."

(*g*) The discovery of a remedy effective against human hookworm disease of the South.

THE BASES OF THE MEAT INSPECTION SERVICE [2, 3, 5]

In 1862, in a small town in Germany, there came to light an epidemic of trichinosis with a mortality of 16 per cent. Three years later another and more serious epidemic occurred in that country with the result that pork began to acquire the stigma of being capable of producing serious and painful human disease with high mortality. These and other epidemics of trichinosis in Europe were not without effect on the American meat industry which, by 1879, had developed a rather flourishing export trade to Europe. By 1881, Italy, Germany, Austria and France had established sanitary regulations prohibiting the importation of pork from the United States because of the alleged danger of acquiring trichinosis. Federal action was taken in 1891 when a Meat Inspection Act was promulgated which provided for the microscopic examination for trichinae of pork intended for export to various countries,

in an effort to surmount the sanitary barriers that had been set up in Europe. This led to the systematic microscopic examination of samples of muscle tissue from millions of hogs intended for export by microscopists of the Bureau of Animal Industry. In a total of over 8,000,000 hogs, samples of which were examined microscopically from 1898 to 1906, nearly 1¼ per cent. were found to contain live trichinae, and, in addition, slightly over 1 per cent. were found to contain what were presumed to be trichinae in various stages of disintegration. With the passage of a new Meat Inspection Act by Congress in 1906, microscopic inspection for trichinae of pork intended for export was discontinued, essentially because this inspection was inherently imperfect since, according to statements published by European meat inspection experts, reinspection of samples of pork from the United States certified as being free from trichinae in accordance with the results obtained by microscopic inspection, showed some of the pork to be infested.

The present meat inspection law was approved by the Congress of the United States on June 30th, 1906. Generally speaking, it places responsibility upon the Secretary of Agriculture to provide for the *ante-mortem* and *post-mortem* inspection of cattle, sheep, swine and goats, for stamping or marking of the carcases with the appropriate legend, depending upon whether they were found to be sound or unsound; for the disposition of condemned carcases or parts; for sanitary inspection of establishments to ensure their maintenance in satisfactory condition. Control of those products extends solely over those carcases, parts or products that are intended for interstate or foreign commerce.

The Imported Meat Act was enacted October 3rd, 1913. It provides that imported meats must comply at entry with the rules and regulations of the Secretary of Agriculture, and that after entry they shall be treated as domestic meats under the Meat Inspection Act and Food, Drug and Cosmetic Act.

The Horse Meat Act was enacted July 24th, 1919, to require that all equine meat offered for import, export, or shipment in interstate commerce must be labelled "Horse-meat" or "Horse-meat Product" under rules and regulations prescribed by the Secretary of Agriculture, and subject to the same penalties which obtain for the slaughter of other food animals. Since horse meat is not a common food item in the U.S., these goods and products are primarily prepared for export and for use as food for carnivorous animals. To differentiate it from other meat products, green ink is used for marking the meat and is applied with an octagonally shaped stamp.

Operation of the Meat Inspection Service [3, 6, 7]

Subsequent statutes and changes have improved the character and enlarged the original scope of the meat inspection laws. The primary purpose of the present system of inspection is to detect and destroy diseased and otherwise unfit meat; to ensure that meat and meat products are kept clean during the stages of preparation to food articles; to guard against the use of harmful preservatives or other deleterious substances; to mark sound and wholesome meat "U.S. Inspected and Passed" (a circular legend stamped in purple ink, a harmless compound; or, on packages, a printed label conveying the same information) to provide ready recognition; and to prevent the use of false or deceptive labels and statements on meat foods that are offered for sale. Severe penalties are imposed on those who violate the law, but there is comparatively little wilful disregard of the provisions. Any establishment may obtain this inspection service without charge, providing it meets the official requirements and regulations.

Since the authority of the Federal Government to inspect meat foods is limited to the supply prepared for the channels of interstate and foreign commerce, the Federal inspection service, in practice, is restricted to the slaughtering and processing establishments whose preparations are transported outside the state or territory; thus inspection cannot be forced upon an establishment that does not prepare a reasonable amount of products for this type of trade. About two-thirds of the nation's supply of beef, veal, mutton, lamb, pork and their derivatives, the handling, preparation and processing, are maintained under the surveillance of veterinarians and their lay assistants of the Bureau of Animal Industry. The other third of the domestic supply receives no Federal supervision and is controlled by various state, county and municipal requirements. Many states and municipalities have inaugurated meat inspection services modelled after the general plan of the Federal system; their essential requirements are very much alike in basis and no attempt will be made to elaborate upon them specifically.

During the ten-year period comprising the fiscal years 1930-39 inclusive, there was an average annual slaughter of 72,244,260 animals at establishments where Federal inspection was maintained. In the same period the average number of carcases condemned and destroyed annually was 230,741, and many hundred thousand parts of carcases were likewise eliminated. Also several thousand animals were annually found to be unfit for food purposes when submitted to veterinary *ante-mortem* examination in the pens, and these were condemned and officially destroyed. Veterinary authority includes the examination of meat for soundness and wholesomeness as long as it remains at an establishment where inspection is maintained. These supplemental inspections in the year 1939 included 8,440,446,161 lb. of meat and meat products and resulted in the elimination of 5,338,945 lb. as unfit for human food.

The cost to the Federal Government for this service during the fiscal year 1939 was 7·6 cents per animal inspected. Considered on the basis of meat and meat food products the cost was approximately 1/39th cent per lb.

The statutory provision against false or deceptive labelling is emphatic, and enforcement of this portion of the law is given careful attention to prevent fraud and deception.

Before Federal inspection is granted to an abattoir or processing establishment, the plant is required to be constructed, remodelled, equipped and otherwise arranged so as to provide the means for the maintenance of proper sanitation and to furnish the facilities necessary for carrying on the inspection. A few of these requirements include: ample and clean operational space; an abundance of potable water; predominance of impervious floors; smooth flat-surfaced walls; facilities for adequate light and ventilation; predominance of impervious material and equipment for handling meats; sufficient hot water under adequate pressure; modern plumbing; proper sewerage; pavement with drainage connection from livestock pens and outside premises free from objectionable conditions.

Under the Federal system, examination begins in the pens at the inspected establishments; here unfit animals are condemned and promptly destroyed. Those unfit are specially marked and placed apart for separate slaughter, while those appearing normal proceed to the slaughtering department. Each animal passed on *ante-mortem* inspection is subjected to the close scrutiny of veterinarians and technical assistants skilled in the work from the time it enters the slaughtering department until the dressed carcase is conveyed to the chill rooms. During dressing and evisceration the carcase is searched for lesions and signs of disease; obviously the procedure of inspection of the carcase and its vital organs varies somewhat according to the species. In the event of disease or other indication of unfitness being present, the carcase and its organs are held in the custody of the inspector until disposition is made. Animals marked "suspect" and held apart on *ante-mortem* inspection are slaughtered separately. All condemned carcases and other condemned material are branded immediately and are held by the inspector until destroyed. Carcases that pass the various inspectional phases are imprinted with round stamps bearing an abbreviation of "U.S. Inspected and Passed," together with the number officially used to designate that particular establishment: this constitutes the Government's certification that the meat was derived from healthy animals and was prepared under sanitary circumstances.

Meat that is not placed in trade channels for sale as fresh meat, is ultimately transformed by curing, salting, smoking, cooking, melting, refining, canning, chopping, mixing and stuffing, into such food as hams, bacon, corned beef, lard, cooking compounds, sausage and many varieties of canned meat and soup. The preparation of such articles continues under the surveillance of the inspectors, requiring thorough knowledge on their part of the various procedures to which the meat is subjected. Since spoilage may occur at all stages of preparation, these products are inspected and reinspected repeatedly during the whole time they remain at the inspected establishment. Not only are the meat and derived products examined for soundness and cleanliness, but care is taken to see that ingredients and seasonings, such as vegetables, cereal, salt, spice, vinegar and condiments, are clean and fit for the intended use, and that no colouring material, chemical or other substance not officially approved is added to the meat food.

Articles containing lean pork which, when passed on to the consumer, are customarily eaten without cooking, are required to be subjected to special treatment to destroy live trichinae, if any, in the meat. For the accomplishment of this purpose there are three official methods: (1) heating all parts to a temperature not lower than 137° F.; (2) freezing of all parts to a temperature not higher than 5° F. for not less than 20 days (or lower temperatures that during a shorter period will give the desired result), or (3) curing the meat or product according to one of four special methods. Some of the products treated under Federal inspection to ensure the destruction of trichinae, if present, are the commonly known bologna, frankfurt and vienna-style sausages, various kinds of dry or summer sausage, cooked ham and Italian-style smoked ham.

To supplement the continuous inspection conducted during these stages of preparation, samples of curing materials, spices, added ingredients, and of meat and finished food articles, are collected

and sent to specially equipped regional meat laboratories for examination to determine suitability and acceptability. Careful supervision also is exerted to ensure that water and ice supplies do not become polluted.

Upon application certificates of inspection are issued to exporters for consignments of inspected and passed meat and meat products to any foreign country. These certificates, together with serially numbered inspection stamps, which are fixed to each outside container, are the U.S. Government's guarantee that the animals from which the meat was derived were given veterinary *ante-mortem* and *post-mortem* inspection, and that the meat or product is healthful and wholesome.

The Federal meat inspection service, because of the large proportion of food animals which pass beneath its far-flung supervision under the examination of the several hundred veterinarians and assistants inspecting these animals before and at time of slaughter, is able to aid its parent organisation, the Bureau of Animal Industry, in locating centres of communicable diseases. A single diseased animal in a shipment received at an inspected establishment, sometimes serves, when traced back to farm or ranch, to locate a danger spot for the dissemination of animal disease. Another economic benefit is the prevention of the spread of animal diseases and parasites through the prompt reduction of condemned material into grease and tankage at the inspected establishments, the process obviously rendering it non-infectious.

The laws under which the controlling orders were made have already been described and include the Meat Inspection Act, together with appropriate amendments, the Imported Meat Act and the Horse Meat Act. Details covering the application of these laws are clearly and specifically stated by B.A.I. Order No. 211, revised. Because of the length of the Order, no attempt will be made to summarise its extensive provisions, but every detail of the operation of the meat inspection service and its requirements is contained therein; it includes:—

Regulation 1. Definitions.
" 2. Scope of inspection.
" 3. Organisation of Force.
" 4. Applications for inspection or exemption; retail butchers, retail dealers and farmers; declarations for inedible products establishments.
" 5. Official numbers and inauguration and withdrawal of inspection.
" 6. Assignment of bureau employees.
" 7. Facilities for inspection.
" 8. Sanitation.
" 9. *Ante-mortem* inspection.
" 10. *Post-mortem* inspection.
" 11. Disposal of diseased carcases and parts.
" 12. Carcases of animals slaughtered without *ante-mortem* inspection.
" 13. Tank rooms and tanks.
" 14. Tanking and denaturing condemned carcases and products.
" 15. Rendering carcases and parts into lard, rendered pork fat and tallow, and other sterilisation.
" 16. Marking, branding and identifying meat and products.
" 17. Labelling.
" 18. Reinspection and preparation of meat and products.
" 19. Market inspection.
" 20. Reports.
" 21. Appeals.
" 22. Co-operation with local authorities.
" 23. Bribery, counterfeiting, etc.
" 24. Export stamps and certificates.
" 25. Transportation.
" 26. Food and Drugs Act.
" 27. Imported meat and products.
" 28. The inspection of cattle at unofficial places.
" 29. The inspection and handling of horse meat and meat food products thereof, and the animals from which they are derived.
" 30. Authority delegated to the Chief of the Bureau of Animal Industry.
" 31. Inspection during the present war at certain meat packing establishments engaged in intra-state commerce only.

The Veterinary Service of the United States Army [8]

The Veterinary Service is a component of the Medical Department of the United States Army and is charged, among its other responsibilities, with making the necessary inspections pertaining to meat and dairy hygiene as prescribed by appropriate Army Regulations. In general, the meat and dairy hygiene service of a command includes the inspection of meats, meat food, milk and dairy products, fish, poultry and poultry products, game, fats and cooking oils, whether fresh, frozen, cured, canned or otherwise processed. These inspectionary procedures are applied to all foods of animal origin received by a command or any part of it, including army transports or commercial vessels operated as troop transports. Inspection prior to procurement is made to determine the quality, including type, class and grade, and the sanitary condition of the product; it also includes the sanitary condition of the establishment or plant in which the product is produced, prepared, manufactured, stored or handled, with the single exception that the army accepts the findings of the Bureau of Animal Industry, United States Department of Agriculture, as far as they go, and completes for the army the inspection to the point of issue to troops. Whether intra-state or inter-state in origin, meat and meat food products purchased by the army as part of the ration or by organisation messes, exchanges or other restaurants operating within the limits of the command, to be acceptable must have originated in plants under the supervision of the Bureau of Animal Industry and must bear the stamp of that agency.

The Veterinary Meat and Dairy Hygiene Service has a dual object:—

(*a*) To protect the health of the troops against disease transmitted through spoiled, damaged or contaminated foodstuffs, and

(*b*) To ensure that the interests of the Government are not jeopardised by determining that the quality of the product complies with the contract requirements.

Full description of sanitary requirements as they are applied to various establishments, storehouses and refrigerators is not included because of the extreme detail necessary for adequate description. However, the requirements, generally speaking, are essentially the same as those established by the Bureau of Animal Industry.

Inspection as practised by the Veterinary Service is divided into nine classes:—

Class 1. *Ante mortem.*
" 2. *Post mortem.*
" 3. Prior to purchase.
" 4. On delivery at purchase.
" 5. Any receipt except purchase.
" 6. Prior to shipment.
" 7. Issue or sale.
" 8. Purchases by exchanges.
" 9. In storage.

Classes 1 and 2 are necessary only under field conditions when animals are locally obtained and slaughtered. Under these circumstances it is the full responsibility of the Veterinary Service to assume all the inspectional procedures previously described and normally accomplished by the Bureau of Animal Industry when the command is within the continental limits of the United States.

Class 3 inspection customarily is accomplished at the establishment preparing the food products to determine that the ingredients meet the contract requirements and that the completed product is sanitary, sound and properly packed.

Class 4 inspection is applied to the command where the products are delivered. This actually is the acceptance inspection of the army, since it is at this point that the items become Government property.

The remainder of the classes of inspection are accomplished after the products have become Government property; the intent is to guarantee the sanitary integrity and soundness of the items during the various handling and issuing processes until ultimate consumption by the troops.

Products are inspected prior to shipment from one army depot to another, and are again examined at the receiving installation to determine any deterioration that may have occurred during transit. Purchases made by exchanges, whether from the army quartermaster or any other source, are examined upon arrival at the utilising organisation. Periodic inspections are made while products are in storage to ensure that the conditions under which they are stowed will not contribute to deterioration and to maintain their appropriate holding and handling.

The Results

As is true in the practice of other branches of preventive medicine, it is impossible to provide concrete evaluation which may express the contribution made to general public health and the financial savings brought about by this system of meat inspection since its inception. The mind of man is not as responsive to the advantages of obscure savings as it is to losses which may be expressed in money values. There can be little reasonable doubt that the practice of this meat inspection system has contributed to the increase of the average life expectancy of man, has reduced average human suffering by the elimination of infected,

infested, contaminated or adulterated meat or meat food products, and thus has been instrumental in the saving of considerable public and private funds. The spread of animal disease has been curtailed, thereby minimising the number of unthrifty animals and reducing the mortality rate.

Thus its accomplishments must be measured negatively, by that which might have occurred had the system not been in operation. However, it is necessary only to look through the historical archives of five decades ago bearing on the civilian food supply and on the military meat scandals. The Bureau of Animal Industry and the United States Army are justifiably proud of the salutary effects their efforts have brought to each citizen; they know that the work done, often under official criticism and public censure, often wearisome, sometimes dangerous, has helped to make the United States of America a safer country in which its people may live under liberty and pursue their happiness.

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STILBOESTROL IN VETERINARY MEDICINE

The synthesis of oestrogenic hormone—diethylstilboestrol—in Great Britain in 1938 placed a useful, safe and inexpensive drug in the hands of veterinarians practising among farm animals. The drug is widely employed in the United States in the treatment of retained placenta and anoestrus. It loosens the attached placenta and cleanses the uterus of detritus by causing contraction of the myometria and by the same action, inciting oestrus in the shy breeding female: cow, ewe, sow and other matrons. In small heifers, 10 mg., and in larger ones 20 mg. will produce oestrus in one to three days with almost unerring precision, but as the sexual excitation does not necessarily correspond with ovulation, the animal should not be bred until the appearance of the natural oestrus period. Perhaps its most spectacular action is the expulsion of mummified foetuses, in which condition expulsion of the content of the rumen does not take place because the normal oestrogen level is not attained and the corpus luteum is stabilised for the duration of the abnormal pregnant state. Stilboestrol breaks up this vicious cycle and others which interfere with normal breeding—such, for example, as pyometra and catarrhal endometritis. Other remarkable actions of this synthetic oestrogen are causing the teats and udder of virgin heifers to develop and produce milk, and increasing the solids in the milk of adult cows.

Intrauterine haemorrhage from overdosing, pointed out in human medicine, has not been reported in animals.—*Iowa Veterinarian.*

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D.D.T. AS A BLOWFLY REPELLENT

Effects of D.D.T. as a repellent against the sheep blowfly in 1944 were the subject of experiments carried out by the Agricultural Research Council. The report on this work, which was carried out by the Council's Unit of Insect Physiology at the School of Agriculture, University College of N. Wales, Bangor, states that no complete batch of eggs was laid on the treated sheep, though on undipped sheep many such batches were laid. One batch of sheep which had been dipped with a proprietary arsenic dip two days previously to the count had eggs laid upon them, although the fleece was still odorous and sticky, while sheep dipped six weeks before with D.D.T. were immune. The trials showed that adult flies seeking in a D.D.T.-treated fleece for a site to lay their eggs subsequently die. Of 13 flies caught on sheep treated three weeks previously, nine died within 24 hours.

The 1945 trials are to be extended, and an attempt is to be made to find a lure to add to the D.D.T., so that sheep so dipped attract the flies and act as "fly traps."

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WEEKLY WISDOM

Four Propositions in Medical Education

". . . no one's destiny should be in the hands of any one man . . ."—The Lancet. (A Running Commentary by Peripatetic Correspondents), 1944, September 9th, p. 356. Proposition No. 4.

CLINICAL COMMUNICATION

Charlock Poisoning of Lambs

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History.—Two batches of wether lambs in excellent condition were folded at extreme ends of an extensive field of rape, supplementary feed of crushed oats being supplied daily to each. No sign of illness occurred in one batch but in the other, comprising 180 lambs, deaths commenced on the fourth day after introduction to the fold. Nine died within the ensuing three days and one on the eighth day, the lambs having been removed to ley pasture on the seventh day.

Charlock was present at both ends of the field, in fair quantity at one end, but in the fold where deaths occurred the weed was flourishing in super-abundance and constituted a particularly heavy undergrowth. It was impossible to grasp a plant of rape without including charlock. The charlock was well podded, the seeds being fully formed.

Symptoms.—Some lambs were found dead; others, prior to death, exhibited diarrhoea, straining, extreme depression, rapid and laboured respirations, slightly abdominal in type and with occasional grunting. The conjunctivae were very injected, the temperature (taken in one animal only) was 105·8° F. and slight frothing was apparent from the mouth and nostrils. Apart from the animals which died almost all in the fold showed signs of illness, there being listlessness and diarrhoea, and most refused the trough feed.

Post-mortem Examination.—One dying lamb was taken to the laboratory and *post-mortem* observations were limited to this case.

Gastritis and enteritis were present, the intestinal inflammation extending throughout the length of the gut, being severe in evenly distributed patches and slight elsewhere. Mesenteric blood vessels were extremely congested, slight inflammation of the oesophagus and trachea was noted and macroscopic nephritis was present to a marked degree in both cortex and medulla. Lungs, liver, bladder, serous membranes, heart, etc., were normal in appearance.

Diagnosis.—The symptoms, *post-mortem* findings and circumstantial evidence strongly supported a diagnosis of charlock poisoning. Subsequently the charlock was removed by hand—no mean feat—the lambs were returned to the fold and no further deaths or signs of illness occurred.

Mouse inoculation failed to reveal any trace of intestinal toxin, no significant number of gastric or intestinal nematodes was found and cultures made from various body tissues showed no growth.

DISCUSSION. Lander, in his "Veterinary Toxicology," groups charlock with certain other members of the *Brassica* genus as being toxic to animals. A note on the subject, of unknown origin, in the possession of one of us, states that charlock is quite innocuous when young but highly dangerous when the seeds have formed. The principal toxic agent would appear to be mustard oil. In view of this it is surprising that this type of poisoning does not occur more frequently, but, at the same time, it would seem that sheep at least will not graze the weed if it can be avoided. Support is given to this by the fact that, as stated, charlock was present in fair amount in another fold where all animals remained perfectly healthy.

In view of the similarity of circumstances surrounding this outbreak with those which commonly attend deaths from entero-toxaemia it may not be out of place to discuss the differential diagnosis and enumerate the salient points of difference.

In entero-toxaemia one usually finds dead animals with no premonitory symptoms having been noticed. Also we have yet to experience an outbreak of this disease where practically a whole group of animals was affected. In the condition under discussion illness was very apparent before death in most cases and almost all animals in the group exhibited symptoms. Also only one of the two groups was affected, both being folded on the same rape crop, the only difference being, apart from situation, that charlock was extremely abundant in one and much less so in the other.

It is not considered that the picture on autopsy was suggestive of entero-toxaemia. Severe abomasitis and enteritis were present, indicative of the passage of some irritant substance, in the absence of bacterial or other established cause. We have never noticed gastritis or enteritis of this nature in entero-toxaemia; in the latter condition the state of the small intestine is more of a generalised hyperaemia and the abomasum is usually normal.

THE VETERINARY RECORD

April 28th, 1945

MILK : AN IMPORTANT PARLIAMENTARY DEBATE

ON Wednesday, April 11th, 1945, the House of Lords discussed, for a period of four-and-a-half hours, a Motion on Milk and Diseases of Dairy Cattle introduced by Viscount Bledisloe. The noble Lord is to be congratulated upon introducing this subject for discussion and also upon the very comprehensive and, in large measure, factual opening he gave to the debate.

Despite the unprecedented time devoted to a discussion of such vital veterinary interest, the period proved too short to permit participation in the debate by all of the 18 peers who had put their names down to speak. The twelve speakers maintained the discussion at a high level, although the unfortunate reference to " disease-ridden herds," subsequently withdrawn, made by Lord Listowel, replying on behalf of the Minister of Health, directed publicity to this overstatement and thereby lost a considerable proportion of the valuable educational material that could have been offered by the Press to the public. It is for these reasons that last week we published about 50 per cent. of the debate. Unfortunately, paper restriction prevented us from giving verbatim the 71 columns of *Hansard*.

After carefully reading the debate in its entirety we cannot but agree with the view expressed by Lord Bledisloe, who said, in opening his reply :—

> **"My Lords, for 30 years I have been taking part in agricultural debates in the two Houses of Parliament, and I cannot remember any other debate in which so many interesting, useful and suggestive speeches have been made."**

We would further add our appreciation of the fact that in no previous debate has so much attention been devoted to diseases of cattle and to the veterinary profession and its work. Usually when such references have been made they have been given in quasi-popular language and have all too frequently been inaccurate in detail, but on this occasion both the assertions made in debate and the figures given were largely accurate, many of them being those given in the Cattle Diseases Report of the Association.

Naturally, in a debate of this character certain statements would not be accepted by the profession, and in the absence of a veterinary peer they passed uncorrected, but in the main the matter would meet with our approval.

Whilst the actual figures given for the losses of milk caused by disease were questioned, it was generally agreed they were of that order, and both the Duke of Norfolk, replying for the Ministry of Agriculture, and Lord Listowel, replying for the Ministry of Health, accepted the seriousness of the losses and the need for more vigorous action. Lord Bledisloe put his finger on the spot when he stated " the problem needs to be tackled at its source, which is in the main, both as regards quality and quantity, animal disease."

Many peers made reference to the shortage of veterinary surgeons and Lord Bledisloe gave interesting figures comparing the average yield of dairy cattle with the number of veterinary surgeons in various countries. Several peers made reference to the urgency for improvement in the facilities offered to veterinary education, but most of them did not accept the shortage of veterinary personnel as a reason for taking little action ; indeed the Proposer of the Motion outlined eight steps which he thought the Government could tackle. His eight suggestions were :—

(1) A proper survey of the incidence of disease ;

(2) An increased bonus for milk from attested herds with an intimation that only milk from disease-free herds would be accepted for human consumption after a period of five to ten years ;

(3) A State Veterinary Service ;

(4) The marking of tuberculosis infected animals ;

(5) The compulsory vaccination of calves against contagious abortion ;

(6) A compulsory health service for cattle along the lines of the present survey scheme ;

(7) The creation of disease-free areas and their gradual expansion ;

(8) The establishment of a State Abattoir Service under veterinary supervision, as in other progressive countries.

We do not wish to comment here on the above suggestions more than to emphasise that the period proposed under (2) may prove too short and that, under the heading (3), we feel that Lord Bledisloe did not mean to imply that independent veterinary practice should cease, but that he was briefly indicating a view held by many that State work, undertaken by practitioners on behalf of the dairy industry, should be increased and that a more comprehensive plan for the control of disease on the farm should be developed in full association with the Animal Health Division.

A further point was brought out strongly by a number of speakers which can be summed up in the words of Lord Cranworth. He said : " There is no doubt that in farm buildings without electric light, without water, without adequate drainage, no farmer, however he may try, can hope to prevent disease or hope to cure disease, or hope to do anything to prevent disease increasing." We strongly support this plea for action in so far as " public health facilities " for dairy farms are concerned.

It is pleasing to read the Duke of Norfolk's reply and particularly to note his warm welcome of the tribute paid to the veterinary profession by previous speakers. We hope that the promise of action indicated at the end of the Duke's speech will materialise soon ; indeed we believe that the profession is able to pursue a planned objective forthwith. He stated :—

> " My right hon. friend, the Minister of Agriculture, and all who work with him, are fully alive to the importance of disease and the loss sustained from it. They, no less than he, desire to see disease reduced as far as possible as time goes on, and when more material and labour are available after the war. I think that all of us will agree that a lot has still to be done. I assure my noble friend that the Government fully intend to do what they can to see that the health of this nation is

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In entero-toxaemia one may find great congestion of the kidneys accompanied by haemorrhages when the examination is carried out immediately after death. Both are usually apparent before cutting open the kidney. In the animal examined nephritis without haemorrhages was present in both cortex and medulla, visible only on the cut surface.

Perhaps the most constant feature present in entero-toxaemia is haemorrhage of the myocardium with the presence of fluid in the pericardial sac. The heart was quite normal in the animal examined.

As has been stated, intravenous inoculation of mice with intestinal filtrate failed to demonstrate toxin. The mice were inoculated with expedition, no delay having occurred between examination of the lamb and the carrying out of this test.

not harmed because of disease among the cattle in this country."

Lord Addison emphasised the need for improving the facilities for veterinary instruction and for paying the staffs of the colleges adequately. Indeed many speakers emphasised the necessity for the proper remuneration of veterinarians and reference was made to the need for increasing the fee paid to practitioners who participate in the so-called "Panel Scheme."

It was refreshing to read Lord Moran's speech in which, whilst he stressed the importance of milk as a food for human beings, he drove home the point that pasteurisation was purely palliative and that the real and urgent problem was to improve the health of our dairy cattle.

In this editorial we have not room to make reference to the many other important points made by the noble Lords and we would end by quoting first from Earl De La Warr, who said :—

> "We should all agree, however, that the sooner we face the unpleasant facts which have been laid before us to-day by the noble Viscount, Lord Bledisloe, and others, the sooner are we likely to solve the very grave problems with which we are faced";

and finally from the Earl of Listowel who, after making reference to the seriousness of the position, stated :—

> "Unless these elementary facts are constantly in the public mind the Government will lack the support they need for effective action."

There is no doubt that from the point of view of strengthening the Government's hand to go forward to tackle the major problems before them, debates of the character such as that introduced by Lord Bledisloe in the House of Lords, perform a very useful function provided, of course, the plans for action are resolutely prosecuted.

CALLING-UP OF VETERINARY PERSONNEL

In a letter on the above subject recently appearing in the *Hampshire Chronicle*, Mr. J. F. D. Tutt, F.R.C.V.S., of Winchester, writes as follows: "I notice that you have published the text of a resolution passed by the Winchester Branch of the National Farmers' Union, and in view of its place of origin, I wish to make it quite clear that at no time since the inception of this Branch has any communication been received from it, or sent to it, by me, or any person employed by this practice.

"Naturally I am in favour of it, but I doubt the wisdom of sending it to the Minister named, for the acute shortage of veterinary surgeons in agricultural areas is in no small degree due to the persistent refusal of this Minister to withdraw the reservation placed on all members of his Animal Health Branch.

"It would have been better to have sent it to those Members of Parliament who have proved in the past that when elected they are neither tongue-tied, nor so indelibly stamped with their Party label that they are afraid to criticise matters—save when coming from the Opposition.

When reservation was removed from the veterinary profession the following resolution was sent to the Ministry of Agriculture (as the body responsible for the appointment of the Army Service Veterinary Selection Committee): 'The Finance and General Purposes Committee of the National Veterinary Medical Association of Great Britain and Ireland, fully appreciating the urgency of the need for recruitment of a comparatively small percentage of the profession and anxious to ensure that the profession plays it part in the present emergency, desires to urge that no unfair discrimination should operate upon men in different categories of the profession whether in general practice or whole time, research, or administrative duties.' No notice has been taken of this resolution: the demand has been confined to those in the first category, and the other three kept strictly reserved."

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The sum of £1,000 is offered by the National Equine Defence League, which also concerns itself with smaller animals, to any person or firm who will invent a trap completely to supersede the steel-toothed gin trap for catching rabbits and other animals. Details are obtainable from the secretary at Blackwell, Carlisle.

ABSTRACTS

[**Digestion in the Ruminant.** McAnally, R. A., and Phillipson, A. T. (1944.) *Biol. Rev.* **19**. 41-54.]

The rumen and reticulum together form a fermentation chamber into which food passes to be kept in continual motion by a regular cycle of contraction which commences in the reticulum and passes to the rumen. The contractions of the reticulum are brisk and occur about once a minute, while those of the rumen are slow and sustained in comparison. Considerable variation is seen in the movements of the rumen although these are deviations of one basic rhythm.

In young suckling ruminants milk passes directly to the abomasum owing to closure of the oesophageal groove. The circumstances under which closure occurs have been investigated in some detail and the evidence points to the conception that desire for milk is the fundamental factor concerned rather than the manner in which liquid is presented to the animal. Solid food passes to the anterior region of the rumen and from there heavy food tends to sink into the reticulum at least in part while light food passes back into the rumen proper. Three possibilities are open to ingesta in the reticulum: they may be (1) regurgitated, in which case they return again to the anterior region of the rumen, (2) washed back into the rumen during contraction of the reticulum, or (3) passed to the omasum. The speed with which ingesta pass from the reticulo-rumenal sac is influenced by the size of the individual particles for, apart from the limit set by the size of the opening to the omasum, the smaller the particle the more rapidly it can pass through the rumen and so back to the reticulum. The rate at which a meal of stained oats disappears from the rumen of cattle indicates that although the concentration of stained particles has fallen by half within 48 hours some remain in the rumen for as long as seven days. The time spent by ingesta in passing through the alimentary tract of ruminants is greater than in animals such as the horse and pig; this is due to the prolonged sojourn of food in the rumen and it is probable that the ability of the ruminant to digest a greater proportion of the fibre of the food than other herbivores is due primarily to this factor.

The conditions prevailing inside the rumen make it an ideal fermentation chamber. The temperature is constant and the ingesta are maintained in a semi-liquid condition and at a reaction that varies usually between *p*H 6 and 7. The stability of the reaction is due to the saliva which is secreted in large quantities and which contains a high percentage of bicarbonate, several times that of the blood, which makes it an efficient buffer.

Fermentation of cellulose *in vitro* by mixed cultures obtained from the rumen gives rise to a mixture of the lower fatty acids together with methane, carbon dioxide and sometimes hydrogen. The initial stages of the hydrolysis of cellulose are not understood, but glucose appears to precede the formation of the lower fatty acids, for if fermentation is arrested at its height this sugar accumulates in the media. On account of this it has been suggested that glucose is the nutrient absorbed by the animal. Free glucose as such, however, does not persist in the rumen of animals fed on a mixed diet for more than a short time, for it is in turn fermented, lactic acid and finally lower fatty acids accumulating in its place.

The introduction of cellulose, starch and of various sugars into the rumen results in an increase in the concentration of lower fatty acids; the rate at which fermentation occurs varies with the substrate. The individual acids found in the rumen are acetic, propionic and butyric; of these, acetic predominates and on an average accounts for from 60 to 70 per cent. of the total volatile acidity.

Many of the bacteria of the rumen stain blue with iodine and have the ability of storing within their cytoplasm a starch-like polysaccharide which may represent the soluble sugar obtained from cellulose. The addition of glucose to the rumen contents certainly results in the iodophilic cocci becoming loaded with polysaccharide. The nutritional significance of the bacterial polysaccharide has yet to be assessed from the point of view of the animal, for until the quantity of this material reaching the small intestine, where it can be digested, has been measured the quantitative aspect will remain obscure. Bacteria themselves represent a part of the products of digestion in the rumen and the energy and nitrogen necessary for their multiplication must come from the food eaten by the ruminant. The bacteria are capable of using non-protein nitrogen for their requirements, at least in part, and so can be said to synthesise protein in the rumen. This property can be exploited by including urea in the diet to replace some of the protein of the ration. Members of the B group vitamins are also manufactured by bacteria in the rumen.

Direct quantitative measurements of the degree of digestion in the rumen indicate that as regards carbohydrates at any rate, the rumen is the most important organ concerned, for it is claimed that of the total dry matter of the ration that is digested 90 per cent. occurs in the rumen and that of the cellulose digested 85 per cent. occurs in the rumen within 14 hours. The rate at which methane

is evolved supports this conception while measurements of the variation of *p*H of the ingesta of the rumen and the concentration of volatile acids indicates that the peak of fermentation occurs not later than 12 hours after feeding. Even so, the quantity of cellulose that is potentially digestible in material such as hay or straw and which is excreted undigested is appreciable; this is borne out by the fact that, during fast, methane excretion persists for several days and is due presumably to fermentation of this material, for food stagnates in the rumen.

Volatile acids are present in high concentration in the rumen, but only in low concentration in the abomasum; a comparison of the concentrations of volatile acid in blood draining the various parts of the alimentary tract indicates that these acids are absorbed directly from the rumen, for it is only in blood draining the rumen and reticulum and to a lesser extent the omasum and caecum that a high concentration occurs. The quantity of these acids absorbed from the rumen and reticulum is sufficient to emphasise their importance as a nutrient, but the manner in which they are utilised by the body is still obscure.

A. T. P.

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[Rumen Synthesis of the Vitamin B Complex as Influenced by Ration Composition. Lardinois, C. C., Mills, R. C., Elvehjem, C. A., and Hart, E. B. (1944.) *J. Dairy Sci.* **27**. 579-583. (Dept. Biochem., Coll., Agric., Univ. Wisconsin, Madison.).]

Experiments were carried out with a fistulated cow and a fistulated calf, the age of which is not given. With a basal ration of timothy hay, but only in the presence of a readily fermentable carbohydrate such as maize molasses, the addition to the diet of 200 g. of urea daily increased the ruminal synthesis of riboflavin, nicotinic acid, pantothenic acid and biotin. The effect with vitamin B_6 was not constant, and synthesis of "folic acid" was not augmented. Ruminal synthesis of vitamin B_1 could not be demonstrated, but it is considered that it nevertheless occurs but is masked by a more rapid rate of absorption or destruction.

A. N. W.

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[The Nutritional Significance of Grass. Elvehjem, C. A., and Sober, H. A. (1943.) *Chronica Botanica.* **7**. 301-303. (Dept., Biochem., Univ. Wisconsin, Madison.).]

A brief review which discusses such factors as the increased milk production resulting when cows are turned out to pasture, the nutritional losses resulting from haymaking and other forms of conservation, the possible utilisation of grass in the human dietary, and the presence of the chemically unidentified "grass juice factor." The following data are given in a valuable table, headed "A representative analysis of grass (dry basis)": carotene, 45 mg. per cent.; vitamin K_1, 40 mg. per cent.; alpha-tocopherol, 20 mg. per cent.; vitamin B_1, 12 mg./g.; riboflavin, 25 mg./g.; vitamin B_6, 12 mg./g.; pantothenic acid, 12 mg./g.; nicotinic acid, 85 mg./g.; biotin, 0·25 mg./g.; vitamin C, 500 mg. per cent.; choline—the requirement of rats on an 18 per cent. casein-synthetic basal diet—is supplied by 6 per cent. grass; chlorophyll, 1·2 per cent.; xanthophyll, 60 mg. per cent.; protein, 25 per cent.; reducing sugar (before hydrolysis), 2 per cent.; reducing sugar (after hydrolysis), 12 per cent.; ash, 11 per cent.; crude fibre, 18 per cent.; crude fat, 7 per cent.

A. N. W.

SULPHONAMIDE OINTMENTS

Since 1939 many of the sulphonamide compounds have been used in ointment form in the treatment of many infectious skin diseases. They have been incorporated into various kinds of ointment base, but it appears that the problem of determining the composition of an ointment which would attain maximum absorption is still unsolved. Some work on the factors affecting the *in vitro* activity of sulphonamide ointments has now been reported (*J. Amer. Pharm. Ass.*, 1945, **34**, 17). A number of bases were tested by the cup-plate method for the zone of inhibition of growth for their ability to act as carriers for the sulphonamide drugs. Each ointment was tested on *S. aureus* to determine its relative bacteriostatic power. Best results were given by an ointment base containing 10 per cent. glyceryl monostearate, 5 per cent. liquid paraffin, 20 per cent. lanolin and 60 per cent. water. In this base, sodium sulphathiazole was shown to have the greatest inhibitory power, at an optimum concentration of 5 per cent. and an optimum *p*H value of about 10·0. A concentration of a surface tension reductant of 0·5 per cent. was shown to have beneficial effects.—*Pharm. J.*

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A committee of pedigree livestock breeders, under the chairmanship of Mr. J. L. Cridlan, has, up to the end of the last financial year of the Red Cross Agricultural Fund, raised £176,840 for the Red Cross and St. John Organisation services.

MEETING REPORT

The Nutrition Society, Scottish Group*

Problems of Stock-feeding

In the morning session, Dr. J. Russell Greig, Director, Animal Diseases Research Association, introduced the subject by a historical review of agriculture in general and animal husbandry in particular, in their relationship to animal nutrition. Starting from about the 12th century, Dr. Greig surveyed the state of animal husbandry in Scotland, indicating the poor conditions under which animals were kept prior to the Union. He then outlined the main development in Scottish agriculture during the 18th and 19th centuries, showing how improvements in cultivation of the land led to better conditions in the feeding and management of the domestic animals. Only then, when food supplies had been so improved by developments in cultivation that the animals had no longer to remain in a state of near-starvation throughout the winter months, was it possible to found a scientific study of animal nutrition and follow a systematic course of selective breeding. He wondered, however, whether we had not now gone too far and exploited our knowledge of breeding and nutrition so fully that we were adversely affecting the stamina of our stock.

Mr. Martin Jones, of the North of Scotland College of Agriculture, dealt with the "Wintering of Hill Sheep" in the Highlands of Scotland. The problem in the past had been that continuous grazing all the year round had led to deterioration of the grazings so that eventually it was only in the summer that much green food became available. The rough pasture left was possibly sufficient for mature sheep and cattle but unsuited to the survival of young hoggs, which had, therefore, to be wintered in the lowlands. This was not always possible for economic reasons and the problem had been aggravated in war-time by the ploughing up campaign. The question then was—how could they get winter keep at home? Fertilisation of the soil did not altogether solve the problem, for the improvement was mainly limited to the summer grazings; and reseeding was expensive unless the grasses could be made to persist. That could be done by grazing only in summer and resting the land in the winter—but it was in winter that the grazing was needed. By studying the phases of growth in grass it had been possible to evolve a system which was at least a partial solution to the problem. By resting the pastures during the constructive periods of April to May and September to October and by preventing it seeding during the intervening summer months by intensive grazing with mature hill cattle, it was possible to run sheep on the pasture in the winter months without undue deterioration of the herbage. Mr. Jones then described experiments with this system in Inverness-shire over a period of six years which appeared to be economically sound and had allowed of the wintering of young hill stock (with little supplementary food save a little oats when the ground was covered with frozen snow) as well as the production of good calves in summer with little or no destruction of the good grasses—in fact the clover was spreading and so improving the pastures. He saw no reason why the grasses should not persist for another six years under present conditions and suggested that if the same could be done with all reasonably sheltered areas, ploughing up of only 2 per cent. of the Highlands would provide sufficient winter keep for all the hoggs necessary to replace cast ewes. Another 2 per cent. if available might well be utilised for ewes in the last month or two before lambing.

The system had certainly justified itself in their experiments so far and was being extended and improved on at Glensaugh. Not only did it benefit the young stock by rendering the lambs much stronger and fitter to go back to the hill, but it also had prevented disease taking too great a toll.

The discussion at the morning session was opened by Mr. M. Griffiths, Grassland Adviser for Wales, who said he welcomed this opportunity of advocating more interchange of ideas between Wales and Scotland, where hill conditions were essentially similar. He agreed with Mr. Jones that it was impossible to keep hill grazings in good condition without either wintering away or the use of hill cattle, but he found often that farmers and shepherds were against both so that the grazings were getting coarser and coarser. He felt, however, that the breed societies had not done all they might in the way of improving hill stock—they had not paid enough attention to hardiness in their selection of pedigree rams.

At Aberystwyth, they had kept pastures going strongly for over 12 years and though the quality had not been maintained quite to the extent they would have liked, the wild white clover was still flourishing, which was very valuable. Now they were experimenting with pedigree strains of grasses which they hoped might give even better results.

* Twelfth Scientific Meeting held in the Royal (Dick) Veterinary College, Edinburgh, on Saturday, March 3rd, 1945.

The afternoon session was opened by Dr. J. Stewart, of the Moredun Institute, with a talk on "Pasture and its Dangers to Livestock." Although grass was in many ways an ideal food for animals, said Dr. Stewart, they were repeatedly brought back to the fact that grass appeared to be at the root of many animal ailments; and in spite of its importance in animal economy there were still large gaps in our knowledge of its composition. The usual analytical methods of the agricultural chemist did not give very detailed information and, in particular, we required more details of what was comprised in the "crude fibre" and "non-protein nitrogen" fractions.

Dr. Stewart went on to survey various upsets which occurred in animals at pasture, *e.g.*, scouring in cattle and sheep in the early spring, pregnancy toxaemia in ewes, pulpy kidney in lambs. He then summarised present knowledge of trace elements in pasture, pointing out the more conspicuous gaps. Cobalt pine in sheep had been extensively investigated and means of prevention by top dressing with cobalt salts at 2 lb. to the acre were being applied. But one obscure feature which warranted further investigation was the relationship of cobalt to molybdenum—how did the application of cobalt put up the molybdenum content of pastures? Swayback in lambs was another disease which required further investigation. Recently, there had been a considerable increase in this disease in Scotland in areas where the copper content of the pasture was very low and the lead content normal. This was similar to the Australian findings and differed from the Derbyshire areas where the copper in the pasture was normal and lead abnormally high. This raised the question as to whether or not it was the ratio between the lead and copper which mattered. The whole question of trace elements in pasture required much more extensive investigation.

The same was true of deficiencies and imbalance of major elements like calcium and phosphorus. They had come across cases of typical aphosphorosis in cattle in the Highlands of Scotland with emaciation pica and various types of osteomalacia. Similarly, they had encountered hypocalcaemia in sheep in Northumberland with no obvious clinical symptoms, which responded to mineral mixtures or improved pastures. They had evidence, too, that double scaup in sheep was associated with a low phosphorus content of the pastures.

There were other diseases occurring in animals at pasture where our knowledge of aetiology was even more obscure, *e.g.*, grass tetany with its hypomagnesaemia in spite of ample quantities of magnesium in the grass. Then there was clover sickness, the presumably anaphylactic reaction of horses put suddenly on to rich clover; and lastly, grass sickness which in the main appeared to be associated with the sudden change from feeding dry fibrous foods in the stable to a succulent and relatively luxurious diet of young grass.

Dr. Stewart felt he had said enough to emphasise the fact that grass had certain potential dangers which warranted further investigation. Our knowledge of its exact chemistry must be greatly extended and he would put forward a plea for a group of highly paid organic chemists and plant physiologists to work on this problem in close association with soil chemists and nutrition and disease research workers. He hoped that one of the Research Institutes or Agricultural Colleges might bring such a team together.

Dr. G. Dunlop, West of Scotland College of Agriculture, who gave a paper on "Mineral Deficiency Diseases in Scotland," prefaced his remarks with a film on "Vinquish in Hill Sheep" and a few shots on "Swayback." He then went on to outline his experiences with cobalt deficiency in the West of Scotland and described how, not only had they cleared up the pining but had reduced barrenness and considerably shortened the duration of the lambing season. They had tried distributing cobaltised basic slag over the hill grazings but were now getting better results by dosing the ewes individually with 100 mg. cobalt in 5 ml. water at each of the various gatherings, *viz.*, marking, clipping, dipping and weaning. This obviated also the risk of variable consumption they got with mineral licks.

Swayback was also a problem in the West of Scotland, especially in areas where the lead content of the pasture was high though the copper was normal. Yet in the affected lambs it was the copper reserves which were low and there was no great increase in liver lead. They also had various diseases of sheep like "bent leg," which were apparently due to lack of vitamin D because the administration of cod-liver oil was a reliable preventive agent.

The discussion at the afternoon session was opened by Professor S. J. Watson, Principal of the Edinburgh and East of Scotland College of Agriculture, who said he had been particularly impressed in the papers given that afternoon by the great gaps in our knowledge of many important points. He agreed with Dr. Stewart that they needed a team to consider the whole question of the composition of pasture. First they would need improved methods of analysis. But even after the composition was known they had barely started, as they then had to determine the digestibility of the different constituents for animals and the factors which affected their availability. There were many problems to be overcome in such work—difficulties of sampling, seasonal variations, the effect of wilting, etc. Also they must remember that pasture analysis would not necessarily give them the whole story as was the case, for example, with swayback and teart, where copper was a preventive—but the fault in the pastures did not lie with the copper content. Also it was the ruminant which was mainly affected and there was much work to be done on the relationship of diet to the bacterial activity of the rumen. He therefore had endorsed Dr. Stewart's plea for a team to tackle the whole problem.

REPORT

British Empire Cancer Campaign

[In view of extensive information given therein on work in progress in the field of cancer research under the aegis of the British Empire Cancer Campaign, we reproduce, with acknowledgment to the *British Medical Journal*, the full notice of the annual report of the B.E.C.C. appearing in the issue of the *Journal* of January 13th, 1945.]

The twenty-first annual report of the British Empire Cancer Campaign, under the able editorship of Mr. J. P. Lockhart-Mummery, again embodies brief accounts of research work or clinical investigation from about 40 hospitals, laboratories, research departments, branch councils, affiliated organisations overseas, and individual workers. Thanks to the continuing support of the public, notwithstanding so many other claims, the Campaign has been able to allocate nearly £40,000 for research in 1945.

Carcinogenic Agents

Much work proceeded during the last year on the elucidation of the way in which carcinogenic agents act and on the discovery of fresh agents. Thus in the department of pathology, University of Sheffield, progress has been made in explaining the remarkable tumour-producing properties of the compound 2-acetyl aminofluorene. It is now thought probable that the tumours are due to interference with liver function. It has also been possible to localise the carcinogenic action of acetyl aminofluorene to sites not usually affected. Thus both benign and malignant tumours of the thyroid gland have been obtained by the combined action of acetyl aminofluorene and allyl-thiourea.

Several departments have been working on the special properties of benzpyrene. In the cancer research laboratory of the Royal Victoria Infirmary, Newcastle-upon-Tyne, epidermal tumours have been produced in mice by a single application of this substance if the skin has been treated afterwards with some agent, itself non-carcinogenic, which causes epithelial proliferation. The existence of a sensitising factor in the genesis of tumours is suggested, and it is pointed out that if the same holds good for human pathology, hyperplasia may prove to be a factor of high importance in determining the occurrence of tumours in man.

Work carried out at the Sir William Dunn School of Pathology at Oxford makes it possible to define more closely the relationship between chronic irritation and the onset of cancer. There appears to be little danger of a simple irritant producing a tumour or even a pre-neoplastic lesion by itself, but if a pre-neoplastic lesion has developed, then the subsequent development of a tumour at that site may be facilitated by the action of a non-specific irritant.

An interesting experiment under the auspices of the Marie Curie Hospital indicates that a subline of a high-cancer-incidence strain of mice which had itself lost the power of developing mammary tumours spontaneously may nevertheless transmit this power through the milk factor to a low-cancer strain, showing that the loss of power in the substrain to develop mammary tumours is due not to the milk factor but to a mutation.

Advances in Chemotherapy

At the annual meeting of the Campaign a year ago Professor E. C. Dodds mentioned Huggins's claim that carcinoma of the prostate gland can, in many instances, be checked by administration of the synthetic oestrogen known as diethyl-stilboestrol. It has now been confirmed that such cases can be rendered symptom-free and so maintained for long periods. A report from Middlesex Hospital states that a large series of cases of carcinoma of the prostate are now under treatment with various doses of the three synthetic oestrogens—stilboestrol, hexoestrol, and dienoestrol—and the clinical and X-ray picture and other indications are being closely watched.

Some work has also been done at the Royal Cancer Hospital, London, and at the Christie Hospital and Holt Radium Institute, Manchester, on the treatment of cancer of the breast with another synthetic oestrogen, triphenylchlorethylene. Out of 22 cases of

late cancer so treated, ten have shown a significant, though temporary, retardation, or even partial regression of the growth of the tumour, but the initial effect of the treatment passes off comparatively rapidly, and except in one case, which has shown prolonged arrest, the ultimate course of the disease has in no way been altered. In 14 cases of carcinoma of the breast treated with stilboestrol by the same teams, five showed similar alterations in the growth and behaviour of the tumour. Mr. Lockhart-Mummery comments that while "the results are not of any immediate practical importance, the fact that a marked response was shown in some cases is, clearly, of the very greatest interest and provides a real incentive to the prosecution of this work."

Radiobiology and Radiotherapy

Some quantitative observations from the Strangeways Laboratory, Cambridge, on the effect of X-rays and gamma-rays of radium on tumours of the cervix uteri and also of the tongue and oral cavity seem to support the opinion given at an earlier stage of the work that the significant biological factor for the successful radiotherapy of these tumours is the capacity of the tumour cells for differentiation. In a series of tumours of the cervix the conclusion was that an increase in dose was not correlated with improvement of results in the differentiating types of growth, but with some improvement in the more anaplastic types.

In cancer of the cervix uteri treated with combined radium and X-rays, diarrhoea and other intestinal disturbances have been not uncommon, but these have not been observed in cases treated by radium alone, and it is suggested in a report from the Marie Curie Hospital that further investigation should be made before the combined technique as a routine method is held to be justifiable.

The research department at Westminster Hospital reports promising results in radiation treatment of osteoclastomata (dose: 2,000 roentgens).

"The New Alchemy"

A brief note in the report announces that an account is in the Press concerning five years' treatment of cancer cases by the million-volt X-ray installation at St. Bartholomew's. The scientific committees of the Campaign consider that the time is opportune for an intensified effort in this field. Professor F. L. Hopwood, at the annual meeting, pointed out also that with the cyclotron every member of the series of natural elements can be disintegrated and transmuted. Quantities of these substances have been given a radio-activity comparable to, or even exceeding, that of the radium family of elements. In addition, beams of neutrons are being produced whose penetration into, and lethal action upon, living matter differ notably from those of X-rays. Radio-active varieties of such elements as iodine, calcium, phosphorus, iron, and sodium can be introduced, either distributed throughout the whole body or selectively deposited in certain organs, in the form of non-toxic chemical compounds, and there they may effectively irradiate the surrounding tissue. "Thus the alluring prospect is opened up of combining radiation therapy and chemotherapy in a new method of attack on cancer. . . . The new alchemy seems to offer glittering prizes. We must beware lest it also adds to the number of martyrs to science."

Primary Gastric Cancer

Finally, the Clinical Cancer Research Committee of the Campaign presents this year a detailed analysis of 1,405 cases of primary cancer of the stomach.

The proportion of males to females was three to two, and the mean age of onset was 60 in both cases. It was found that 54·5 per cent. of the patients had consulted a doctor within the first three months, and that 52 per cent. were referred to hospital at once, 13 per cent. were kept under symptomatic treatment for periods up to three months, and a further 19 per cent. for over four months. The seriousness of the position is shown by the fact that of 241 gastrectomies, only 22 per cent. were done while the symptoms were of less than three months' duration, and only 40 per cent. of less than six months' duration. Laparotomy was performed in 49 per cent. of all the cases, but in only 17 per cent. was a radical operation possible, and a palliative operation in only 15 per cent. The survival rate after radical operation in the early stages, before the regional lymph nodes were involved, gave, on the basis of a four-year period of observation, an expectation of life of 65 to 70 per cent. of the normal. When only a palliative operation was possible the expectation fell to 40 per cent. of the normal. Operation mortalities were as follows:—

	Per cent.
Total gastrectomy (20 cases)	90·0
Billroth's operation (27 cases)	25·9
Polya's operation (181 cases)	25·4
Palliative gastrojejunostomy	29·0
Simple exploration	23·0

QUESTIONS IN PARLIAMENT

Dog Racing (Veterinary Inspectors)

Mr. W. J. Brown asked the Secretary of State for the Home Department whether he will consider appointing Government veterinary surgeons to take charge on dog racing tracks in Britain.

Mr. H. Morrison: Control is exercised over the provision of betting facilities at dog racing tracks, but His Majesty's Government are not prepared to accept any responsibility for exercising control over the conduct of dog racing itself, and accordingly are unable to accept the suggestion that Government inspectors should be appointed to take charge on dog racing tracks.

Mr. Brown: Would the Home Secretary be good enough to consider evidence which I shall be happy to submit to him, and which suggests that it is just as necessary that these veterinary surgeons should be appointed by the Government and be responsible to them as it is in the case of the factory inspectors who are appointed by his Department at the present time?

Mr. Morrison: If my hon. Friend will do that, I will, of course, give the matter my fullest consideration, but he might short-circuit the process by sending his information directly to the Royal Society for the Prevention of Cruelty to Animals. Unless good cause is shown, one does not want to add at the present time to the number of Government inspectors.

Sir Herbert Williams: Can the Home Secretary assure me that the dogs will be allowed the same freedom as human beings, namely, free choice of vet.?

Cattle Disease

Sir H. Morris-Jones asked the Minister of Agriculture how many cases of contagious abortion in cattle have been reported recently in Denbighshire; and what action is taken in that area by his Department to prevent the spread of the infection and the resulting contracting of undulant fever by human beings.

Mr. Hudson: Outbreaks of contagious abortion in cattle are not notifiable or subject to administrative action under the Diseases of Animals Acts. Voluntary schemes are, however, in operation aiming at the wide adoption of measures of control of the disease.

Undulant Fever

Sir H. Morris-Jones asked the Minister of Health how many cases of undulant fever have recently been notified in Ruthin, in the county of Denbigh; and what action his Department is taking, in conjunction with the Ministry of Agriculture, to deal with contagious abortion in cattle, which is the cause of the disease.

Mr. Willink: As undulant fever is not a notifiable disease particulars of its incidence are not available. The control of contagious abortion in cattle is a matter for my right hon. Friend the Minister of Agriculture and Fisheries.

Agriculture: Research and Experimental Work

Mr. Price asked the Minister of Agriculture what are the numbers at the present time of the scientific staffs of the agricultural research institutes and experimental stations in the several grades and ungraded; what are the salary scales applicable to each grade; whether similar figures are available for agricultural scientists and technicians employed by the W.A.E.C.s; whether these are graded on the same basis and with the same salary scales as those in the research institutes and experimental stations; and whether posts in the National Agricultural Advisory Service will be available to suitably qualified officers of the W.A.E.C.s on the termination of their present temporary appointments.

Mr. Hudson: The following two statements provide the particulars asked for in the first part of the Question in respect of Research Institutes and Experimental Stations grant-aided by the Ministry on the advice of the Agricultural Research Council. Agricultural research and experimental work is also carried out by numerous public and private bodies and persons; corresponding particulars of their scientific and technical employees are not available. The scientific and technical employees of War Agricultural Executive Committees are not graded on the same basis and with the same salary scales as employees of Agricultural Research Institutes and corresponding particulars in their case are not available.

All applicants with suitable qualifications will be considered for posts in the National Agricultural Advisory Service.

Numbers of Scientific Staff employed at Agricultural Research Institutes and Experimental Stations

Grade.	*Number of Staff.*
Principal Scientific Officer	31
Senior Scientific Officer	25
Scientific Officer	103
Probationer	11
Ungraded	76
	246

The graded staffs employed at Research Institutes and Experimental Stations are, with few exceptions, permanent. About 25 per cent. of the ungraded staff may be regarded as employed on a temporary basis.

GRADES AND SALARIES APPLICABLE TO SCIENTIFIC STAFF EMPLOYED AT AGRICULTURAL RESEARCH INSTITUTES AND EXPERIMENTAL STATIONS

Principal Scientific Officer

	Permanent	Temporary
Men	£850 × 30 × £1,050	£850—£950
Women	£680 × 30 × £850	£700—£800

Senior Scientific Officer

	Permanent	Temporary
Men	£680 × 25 × £800	£680—£800
Women	£580 × 25 × £680	£580—£680

Scientific Officer

	Permanent	Temporary
Men	£400 × 18 × 454 × 25 × 580 (bar) × 25 × £680	£400—£650
Women	£350 × 18 × 464 (bar) × 25 × £580	£350—£520

Probationer

Men	£275 × 18 × £347
Women	£275 × 12 × £320

Ungraded

The salaries range from £230 to £600 per annum, depending on duties, qualifications and experience.

War bonus is payable in addition to the above salaries.

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PIT PONIES

Mr. KENDALL asked the Minister of Fuel and Power what steps can now be taken to ensure that no pit ponies have to work a double shift resulting in excessive fatigue for these ponies.

THE MINISTER OF FUEL AND POWER (Major LLOYD GEORGE): I cannot accept the suggestion that a pony which works a double shift necessarily suffers excessive fatigue. Since the work performed and the working conditions vary so greatly, the time a pony is out of the stable is no criterion of whether he is being worked reasonably or overworked. The best index to the latter question is the physical condition of the animal, since overwork soon shows itself in a lowered condition, and that is the basis of the present law. Under the Coal Mines Act, 1911, it is an offence to work any horse, or to allow any horse to be worked, in an unfit condition. My Ministry employs seven fully qualified inspectors who devote their whole time to inspecting pit ponies, their treatment and conditions of work, and other inspectors give some of their time. It is part of the inspectors' duties to see that ponies are not overworked, whether as a result of double shifting or otherwise, and I know of no reason to think that they are being overworked.

Mr. KENDALL: Does not the Minister consider that 14 to 16 hours a day is excessive for a pit pony; and is it not time that something was done to stop such treatment?

Major LLOYD GEORGE: As I said in my answer, the real test is the condition of the pony. There is no case that I know of where any deterioration has taken place, except owing to age.

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AGRICULTURE: LONG-TERM POLICY

Mr. W. J. BROWN asked the Minister of Agriculture if he is now in a position to state the Government's long-term policy on agriculture.

Mr. HUDSON: No, Sir.

Mr. SHINWELL: Will the Minister not regard this matter a little more seriously, as there is a great deal of concern about the future of agriculture in this country; and will he not, very shortly, make a more considered and detailed statement on the matter?

Mr. HUDSON: No one has greater or deeper concern for the future of agriculture in this country than I have, but I still think that the time has not yet come when it is possible to announce the detailed programme.

Mr. DE LA BERE: Urgent priority.

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UNIVERSITY GRANTS (GOVERNMENT PROPOSALS)

Mr. HARVEY asked the Chancellor of the Exchequer whether the University Grants Committee, in making their recent recommendations for increased grants to the universities, took into account the increased cost of living, building, equipment and salaries; whether he can give any estimate of the anticipated percentage real increase in university grants after allowing for such factors; and to what extent such increase will permit expansion of university activities as opposed to meeting increased expenditure due only to the above-mentioned causes.

Sir J. ANDERSON: The answer to the first part of the Question is "Yes, Sir." As regards the second and third parts, I would refer my hon. Friend to the statement which I made on this subject in reply to questions on February 13th. As I then explained, there are many factors of uncertainty which make it impossible to estimate with any accuracy what will be the financial needs of the universities during the transitional period between war and peace. In these circumstances it appeared to the University Grants Committee (and I agreed with them) that it would be inadvisable at this stage to determine the amount of Exchequer grant for more than a short period ahead; and the amounts which the Government propose to devote to university purposes during the transitional period of the next two years are not to be regarded as directly related to the cost of a long-term programme of expansion. As I indicated in my previous statement, I recognise that the grant may have to be further and substantially increased during the later part of the decade covered by the Committee's review. The fact that the Government have already decided to make increases of grant which have the effect of almost trebling the existing grant and that they contemplate the need of further increases at a later date are, I think, a clear indication that so far as they are concerned the need of university expansion on a considerable scale is fully recognised.

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ARTIFICIAL INSEMINATION (EXPERIMENTS ON WOMEN)

Mr. DRIBERG asked the Minister of Health if he can now make a full statement on the current experiments in artificial insemination of women; and if any births have resulted or are expected shortly to result therefrom.

THE MINISTER OF HEALTH (Mr. WILLINK): So far as my information goes, this operation is being performed with donated semen on a small scale in this country in cases where at the joint request of the husband and wife the responsible medical practitioner has satisfied himself that it is desirable. I do not think that the subject as a whole is one which can be satisfactorily discussed within the limits of a Parliamentary Question and answer, but I think it right to say that I am advised that it would be a breach of the law to register as legitimate a birth which occurred as a result of this operation when the husband is not in fact the father of the child.

Mr. DRIBERG: Since the right hon. and learned Gentleman says, I think quite rightly, that this matter cannot be fully discussed by question and answer, would he consider, in view of the interest shown by hon. Members, consulting with the Leader of the House to see whether it is possible to find time to discuss this very important social issue?

Lieut.-Colonel Sir GILBERT ACLAND-TROYTE: Will the Minister bring in legislation to make this disgusting habit illegal?

Mr. WILLINK: No, Sir. There are many aspects of this matter, and I am quite certain that on some of them, at any rate, there would be no general agreement. I am pursuing the enquiry into the whole matter.

Sir PATRICK HANNON: In the interests of common decency in this country, will the Minister make representations to the War Cabinet that this whole experimental scheme be brought to a conclusion?

Dr. EDITH SUMMERSKILL: Will the right hon. and learned Gentleman undertake to maintain a scientific calm in this matter, and not be stampeded by those who approoach it simply from an emotional angle?

Viscountess ASTOR: Well done.

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NATIONAL HEALTH SERVICE

Mr. LIPSON asked the Minister of Health if he will issue a White Paper on the new proposals for a National Health Service, which he has put before the British Medical Association and which they have circulated to their members, so that Members of this House and the public may also have an opportunity to consider the Government's revised scheme.

Mr. WILLINK: I would draw my hon. Friend's attention to the answer which I gave to my hon. Friend the Member for Fulham West (Dr. Summerskill) on April 12th, in which I made it clear that there is as yet neither any revised scheme put forward by the Government on this subject nor any proposals of which publication, in a White Paper or otherwise, would be appropriate.

Mr. LIPSON: Does my right hon. and learned Friend not agree that he has informed the British Medical Association that if these new proposals are acceptable to their members he is prepared to recommend their acceptance by the Government. Is he really treating this House fairly, when the British Medical Association has been able to circularise these proposals not only to their 70,000 members, but also to all members of the public?

Mr. WILLINK: I think I made the position quite clear in the answers I gave last week.

Mr. A. BEVAN: Is it entirely proper for the Minister of Health to negotiate with an outside body legislation wholly different from that which the House itself has discussed in the form of a White Paper; and when does he propose to tell us what the proposals are that he has discussed with the British Medical Association?

Mr. WILLINK: I cannot tell the House what proposals there are, when there are as yet no proposals.

Dr. SUMMERSKILL: Can the Minister reconcile the answer he has given with the answer which he gave me last week, when he did not identify himself with any set of proposals, and in fact evaded

the whole question, although he knows that he has put these proposals to the profession, and has undertaken, if they commend them, to sponsor them to the Cabinet?

Mr. Willink: If the hon. Lady desires to challenge every statement that I made last week and the statement that I have made to-day, I cannot deal with the matter further.

Mr. Fetherick: Since when has it been considered undemocratic for a Minister of the Crown, or a private Member, to discuss important issues with private bodies outside this House, including trade unions?

Viscountess Astor: Is it not true that this body is a trade union, like any other?

Sir Waldron Smithers asked the Minister of Health whether, in view of the divergence of opinion about the proposals in the health White Paper and in view of the fact that many doctors, nurses and patients are on active service, he will postpone the introduction of the Bill based on the health White Paper until after the General Election.

Mr. Willink: No, Sir. I am not prepared to give any undertaking to that effect.

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Penicillin

Colonel Lyons asked the Minister of Health to what extent penicillin is now procurable at the direction of a medical practitioner; and what facilities exist for its immediate availability when it is prescribed.

Mr. Willink: The scheme for the wider distribution of penicillin, to which I referred in reply to my hon. Friend the Member for London University (Sir E. Graham-Little) on March 8th, is now in operation. Supplies of penicillin have been issued through the distributing centres to nearly all the larger hospitals in the country, and may be obtained, on request, by any hospital which has a suitable case. I regret that supplies do not yet permit of the unrestricted distribution of penicillin through chemists and the usual trade channels, and a practitioner who requires penicillin for a patient must therefore obtain it from a hospital and not through the issue of a prescription to the patient.

NOTES AND NEWS

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

April 28th.—Annual General Meeting of the Association of Veterinary Inspectors, Royal Hotel, Woburn Place (Russell Square), W.C.1, 2 p.m.

April 28th.—Joint Meeting of the Biochemical and the Nutrition Societies, London School of Hygiene and Tropical Medicine, Keppel Street, W.C.1, 11 a.m.

May 1st.—Meeting of the North Midland Division, N.V.M.A., at Sheffield (Grand Hotel), 2 p.m.

May 2nd.—Annual General Meeting of the National Veterinary Benevolent and Mutual Defence Society, at Manchester (Grand Hotel, Aytoun Street), 3.15 p.m.

May 3rd.—Meeting of the Central Veterinary Society, at Conway Hall, W.C.1, 2 p.m.

May 4th.—Meeting of the Lancashire Division, N.V.M.A., at the University of Liverpool, 2.30 p.m.

May 8th.—R.C.V.S. Council Elections—last day for nominations.

May 17th.—Meeting of the South-Eastern Division, N.V.M.A., at Maidstone (Royal Star Hotel), 2.30 p.m.

May 22nd.—R.C.V.S. Council Election—Voting Papers issued.

May 29th.—R.C.V.S. Council Election—Voting Papers to be returned.

June 5th.—R.C.V.S. Annual General Meeting.

June 6th.—R.C.V.S. Committee and Council Meetings.

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PERSONAL

Lieut.-Colonel C. H. S. Townsend, M.C., F.R.C.V.S., Receives the C.B.E.

Among the awards for gallant and distinguished services in Italy, recently approved by the King, his colleagues in the R.A.V.C. and the veterinary profession generally, will be pleased to note that of the C.B.E. to Lieut.-Colonel C. H. S. Townsend.

Lieut.-Colonel Townsend joined the Army Veterinary Corps on the outbreak of the Great War, 1914-18, and was immediately posted to France, where, in 1917, he was awarded the M.C. He returned to England in 1917 for a short period and then proceeded to India, where in 1921 he was Mentioned in Despatches and in 1922 awarded the O.B.E. Before retiring in 1937 he completed a tour of duty in Gibraltar.

In September, 1939, he was embodied in the R.A.V.C. (T.A.) and in December of that year he was posted to the Middle East, proceeding to the Central Mediterranean Force in 1943, soon after the start of the Italian campaign.

For distinguished service both in the Middle East and with the Central Mediterranean Force he was Mentioned in Despatches five times, and it was in the issue of the *London Gazette* of April 19th, 1945, that the announcement was made of the award of the C.B.E.

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N.V.M.A. Acting President Visits Northern Ireland

In the absence of the President abroad, Major R. C. G. Hancock, the Acting President, N.V.M.A., attended the dinner held by the North of Ireland V.M.A. at the Grand Central Hotel, Belfast, on Thursday last, when the guests also included the Prime Minister and the Minister of Agriculture of the Government of Northern Ireland, the Vice-Chancellor of the University and the President of the Farmers' Union. Major Hancock replied to the toast to the N.V.M.A.

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Liberated Prisoners of War.—News of the liberation of the undermentioned Prisoners of War by the American Armies in the course of their advance will be received with relief and gratification by our readers.

Major F. J. Eardley, R.A.V.C., of Gloucester, was liberated by the American 3rd Army on April 4th, 1945, whilst being marched East by the Germans from Oflag 9 A/H. Major Eardley was captured in the Saar, June 23rd, 1940, while Veterinary Officer to an R.I.A.S.C. Mule Coy.

Lieut. Peter Pugh, of the Royal West Kent Regiment, son of Major Leslie Pugh, F.R.C.V.S., and Mrs. Pugh, of Pennard House, Sevenoaks, has arrived home, having been liberated from Oflag 4 C, south of Leipzig, also by General Patton's Army, after spending five years as a Prisoner of War.

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Births.—Brooksby.—At Mount Alvernia, Guildford, on April 11th, 1945, to Muriel and John Burns Brooksby, Pirbright, Surrey—a son.

Wood.—At Dundurn Home, Edinburgh, on April 14th, to Agnes, wife of E. G. Wood, M.R.C.V.S., 16, Barnton Gardens—a son.

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R.C.V.S. Council Election

Addresses of Candidates

The addresses of candidates for election to Council, R.C.V.S., will be published in our issue of May 19th. Those who desire to submit such addresses are requested to note that the closing date for their receipt (by the Editorial Representative, N.V.M.A., 36, Gordon Square, London, W.C.1) is Monday, May 7th, and that they must be limited to 250 words.

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R.C.V.S. OBITUARY

Hatton, W. J., The Vineyard, Richmond, Surrey. Graduated London, March 24th, 1886. Died April 12th, 1945.

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PROPOSED PURCHASE TAX CHANGES

The Lords Commissioners of the Treasury have given notice that they propose to make an Order under Section 20 of the Finance (No. 2) Act, 1940, exempting from Purchase Tax a large number of essential drugs and medicines of an exceptionally costly character, and preparations thereof.

Members will know from their accounts with drug houses which preparations are at the moment subject to taxation, and if any individual wishes the Association to make representations regarding any particular preparation, he or she should communicate with the General Secretary forthwith, since representations concerning the proposed Order must be made not later than Friday, May 4th.

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LEGAL NOTES

Riding School Proprietor Summoned.—*The Torquay Times* reports that when Cecil John Waymouth, proprietor of the Tor Riding School, Old Mill Road, Chelston, was summoned at Torquay for causing unnecessary suffering to five horses between March 1st and 7th, by giving them insufficient food and attention, the Bench adjourned the proceedings while they inspected the horses in the stables. As a result the Bench fined Waymouth £5 with £5 17s. 6d. costs and ordered that the horses be handed over to the N.S.P.C.A. for disposal, the proceeds to be given to him.

Inspector Walter Edwards said that following a complaint he and a veterinary surgeon visited the stables on March 5th, and as a result of what they saw these proceedings were instituted. Defendant had five horses, but as they were riding and not working beasts he was not entitled to draw any rations for them.

Miss Frances M. Smith, Women's Land Army, of Stratford-on-Avon, said she and a friend hired two horses from defendant on February 28th but found them in such poor condition that they did not like to canter them and soon brought them back to the stable. The horses were covered with lice, some of which became attached to her. She had had considerable experience of horses and attributed the poor condition of these to lack of food.

Mr. Alfred Smith, M.R.C.V.S., of Paignton, said that after inspecting the horses on March 5th he gave a certificate stating that they were in such poor condition, due to lack of proper care and attention, as likely to cause unnecessary suffering. Two of the five were definitely unfit for work.

Waymouth, in evidence, read out a list of foods which he said he had obtained during March. He said that he occasionally lent his horses to a Mr. Nathan for work and it was the latter who obtained the food for him.

Miss Barbara Jean Smardon, groom at the stables, told the Bench that the horses had plenty of food, including "dowse," and she attributed their condition to lack of hay. In reply to the Chairman, she was not aware that "dowse"—the leavings of threshed oats—was one of the worst things that could be given to a horse.

The Chairman (addressing the defendant) said that these horses were in a deplorable condition and one definitely should be destroyed.

Bench Emphasise Need for Veterinary Advice.—The need for getting expert advice in the event of ailments to livestock was emphasised (states the *Farmers' Weekly* in reporting the case) at Todmorden Police Court, Yorks., when Thomas H. Ankers, Redishaw Farm, Walsden, was fined £2 and ordered to pay two guineas costs, for causing unnecessary suffering to a horse. Councillor F. Morris, J.P., Mayor of Todmorden, who presided, stated that the defendant had been cruel, but perhaps unintentionally.

A police officer and R.S.P.C.A. inspectors said that a two-year-old gelding was in an extreme state of emaciation and very exhausted. The whole of its hindquarters were raw and practically denuded of hair through being treated with paraffin for lice. The animal had to be shot.

Ankers said that the horse had been sick for three weeks. He gave it medicine and fluid, but it did not improve. The paraffin and water he used for the lice must have been too strong as it fetched off the hair.

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ADDRESSES OF DISEASE-INFECTED PREMISES

FOOT-AND-MOUTH DISEASE:

Derbyshire.—Melandra Farm, Gamesley, Glossop (Apr. 16th).

Lancashire.—Barn Hill, Hayes Lane, Heywood; Shawfield Farm, Norden, Rochdale (Apr. 16th); Hague Bank Farm, Broadbottom, Manchester (Apr. 20th).

Warwickshire.—The Farm, Fenny Compton, Leamington Spa (Apr. 17th); Manor Farm, Fenny Compton, Leamington Spa (Apr. 23rd).

SWINE FEVER:

Aberdeenshire.—Upper Buckie Farm, Woodside, Aberdeen (Apr. 20th).

Banffshire.—Hillend, Fordyce, Portsoy (Apr. 16th).

Cambs.—Arnold's Yard, Abbey Street, Cambridge (Apr. 19th).

Essex.—Oxley Wood, Larper Road, Abberton, Colchester (Apr. 18th); High Road, Great Leighs, Chelmsford (Apr. 19th).

Fifeshire.—Piggery at Cocklaw Street, Kelty (Apr. 23rd).

Herts.—Newnham Hall Farm, Newnham, Baldock (Apr. 17th).

Hunts.—High Street, Somersham (Apr. 23rd).

Lanarks.—Piggery at Stepps Road, Auchinlech (Apr. 23rd).

Norfolk.—Back Street, South Creake, Fakenham (Apr. 17th); Bridge Farm, Aldborough, Norwich (Apr. 21st); Council House Lane, Norwich Road, Norwich (Apr. 23rd).

Staffs.—Clifton Cottages, Aston, Claverley, Wolverhampton (Apr. 19th).

Warwickshire.—Hermitage Farm, Longfellow Road, Stoke, Coventry (Apr. 16th); Crabmill Farm, King's Norton, Birmingham (Apr. 19th).

Wilts.—53, High Street, Cricklade, Swindon (Apr. 18th).

Worcs.—Hopton Bank Garage, Cleobury Mortimer, Kidderminster (Apr. 16th); Barnsley Hall Farm, Bromsgrove (Apr. 17th).

Yorks.—Summerley House, Unstone, Sheffield; Abbey Garth Farm, North Lane, Welwick (Apr 16th); New Road, Boroughbridge (Apr. 20th); Piggeries at City Lane, Wheatley, Halifax (Apr. 21st).

SHEEP SCAB:

Yorks.—Dirtlow Rakes, Castleton, Sheffield (Apr. 17th).

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In the first five weeks of 1944, 184 cases of undulant fever were reported to the U.S. Public Health Service. In the same period this year the number was 354 cases.—*Vet. Med.*

Following upon a decision reached by a joint meeting of the Royal Agricultural Society's Veterinary and Stock Prizes Committee and confirmed by the Executive Committee, when the next Royal Show is held, at Lincoln, only cattle from Licensed, Attested or Supervised herds may be accepted for exhibition.

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal views of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

Letters to the Editor should reach the Office not later than by the first post on Monday morning for insertion in following Saturday's issue.

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SULPHONAMIDES IN THE TREATMENT OF BRUCELLOSIS

Sir,—In your issue for March 31st, 1945, Mr. L. E. W. Bevan, M.R.C.V.S., states that "sulphonamides *when properly applied* (his italics) can exert a curative effect upon *Br. abortus* infections, at least in the human subject."

Surely no such assertion can be made and in fact no conclusion whatever drawn from a single human case of brucellosis as to the value or otherwise of a remedy applied. Incidentally, the remedy in this case was not properly applied as "sulphonamide" (presumably sulphanilamide) was given in one dose daily, whereas administration should be four-hourly in order to maintain a fairly constant blood level. The initial dose of 2 grammes which Mr. Bevan administered in such fear is not excessive for a child of five years and the maintenance dosage which would normally be recommended to follow this would be in the order of 4·5 grammes in 24 hours (in divided dosage of course) rather than the 1·5 grammes which Mr. Bevan gave. It is perhaps not impossible, although I imagine quite improbable, that the strain of *Br. abortus* infecting his daughter had a degree of sulphonamide-susceptibility which has not been found in any other strain examined, but even if this were so, and the drug was, as a result, curative, this would not affect the issue of the impossibility of drawing a generalisation from one individual case of an infection which is well known for the variable course it runs.

Mr. Bevan states that "sulphonamides have not proved completely successful in the treatment of contagious abortion of the cow," implying that they have been partially successful for this purpose, and then suggests that this may be due to the manner and time at which they were administered or to a fault inherent in the cow. My information is that sulphonamides have proved useless in the treatment of bovine contagious abortion and I suggest that this has nothing to do with the manner and time at which they are administered nor can the cow be blamed. Sulphonamide therapy rests upon a firm foundation of an activity on certain pathogens which can be demonstrated in the culture medium or in the laboratory animal and which will hold true for mice and for men. If a sulphonamide in a given dosage or blood level will not sterilise the tissues of a guinea-pig experimentally infected with *Br. abortus* it would not be expected to do so in the bovine and in man. Contrary to Mr. Bevan's assertion that the action and uses of sulphonamides in veterinary practice are somewhat empirical, I contend that as in human medicine the veterinary applications of sulphonamides are rational and well-founded, and that in appropriate types of infective conditions where a bacteriological diagnosis confirms the presence of a sulphonamide-susceptible organism, there is in the correct choice and administration of the sulphonamide drug, a means of obtaining uniform satisfactory results.

Yours faithfully,

28, Corbets Avenue, Upminster, Essex. D. G. ARDLEY.

April 14th, 1945.

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ECHINOCOCCOSIS

Sir,—On the 12th inst. a consignment of 12 cattle was received at the Corporation of London's abattoir from the Wolverhampton area. One animal in the consignment had been presented at the collecting centre for certification, but the grading panel refused to accept it, and the owner therefore decided to have it slaughtered as a "reject casualty." The animal was in a very emaciated condition and was slaughtered immediately on arrival. On *post-mortem* examination it was found that its poor condition was due to a very heavy infection with the above condition and the following facts are given as a matter of interest, since it would appear that such a heavy infection with Echinococcosis is very rare despite the reports in certain text-books of livers of cattle weighing up to 1½ cwt.

The liver of the animal in question weighed 85 lb. out of a total dressed carcase weight of 365 lb., and there was for all practical purposes no liver tissue left, simply an unlimited number of cysts of various sizes, the largest being about that of a child's head. This organ was 3 ft. long by 1 ft. 11 in. at its broadest part, tapering to 1 ft. 3 in. at its narrowest. The circumference was 3 ft. while the perimeter (*i.e.*, round the edge of the organ) measured 7 ft. 3 in.

The lungs also contained a very large number of similar cysts of varying sizes from that of a pea to that of a walnut.

The carcase, apart from emaciation and intense oedema, showed very marked peritonitis in the region contacting the liver.

In my experience of meat inspection this is an unusually heavy infection with the condition mentioned and it is reported purely as a matter of interest to those colleagues who are engaged in the public health service.

It would be interesting to know whether any similar cases have been brought to your notice.

Yours faithfully,

Metropolitan Cattle Market, Islington, London, N.7. E. F. McCleery.

April 13th, 1945.

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"COCONUT" AND "CACAO" BEAN

Sir,—In the note on "Lead Poisoning by Salvaged Soya Bean Meal" on page 161 of *The Veterinary Record* dated April 7th, 1945, it would appear that similarity in spelling and pronunciation has led to coconut being confused with cacao. Both products are grown in Ceylon, where I have been stationed during the past 20 years; even there the unfortunate similarity in pronunciation sometimes leads to mistakes. A short description of the two may be useful.

The coconut, often spelt cocoanut, is the fruit of a monocotyledonous palm tree (*Cocos mucifera*) while the cacao bean is the fruit of a dicotyledonous bushy tree (*Theobroma cacao*).

Coconut cake and coconut meal are products of the coconut palm. They are by-products left when coconut oil is removed either by pressure or by chemical solvents from copra, which is the dried flesh of the coconut. Both of these are well known, valuable and perfectly safe cattle foods. Coconut cake is the staple concentrate food for milk cattle in Ceylon and before the war large quantities were exported and used as cattle food in Belgium, Germany and England.

If the product given to the cows in the "outbreak" described by Watson and Adams was actually, as they state, ground coconut meal, then no question of theobromine poisoning need arise.

Ground cacao bean husk is an entirely different product; it can contain theobromine and symptoms of poisoning have been described following its use. This product consists of the ground-up thin outer shell of the cacao bean. This thin outer skin is removed from the beans in the manufacture of cocoa and chocolate. Considerable quantities are available as a by-product from factories where cocoa and chocolate are prepared. During the war attempts have been made to utilise this by-product as a cattle food. It is this product which is concerned in cases where theobromine poisoning is suspected.

It will be very unfortunate if farmers are prejudiced against the valuable and safe coconut cake or coconut meal as a result of confusion with cacao bean husk meal. The two products are quite different in appearance and easily distinguished from one another.

The possibly dangerous ground cacao bean husk is a reddish brown powder of very light weight.

Coconut cake is almost white in colour with reddish specks through it. It is soft and crumbly and has a distinctive sweetish smell. When ground into a meal it is soft, granular, whitish in colour and has the same distinctive sweet smell.

Yours faithfully,

Dudley House, Thurnby, Nr. Leicester. M. Crawford.

April 13th, 1945.

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VETERINARY EDUCATION

Sir,—I have read with interest the supplement to the *Record* (March 31st, 1945), in which are reported the various discussions on the Loveday Report, which took place at the several meetings. I was, however, very disappointed to find that nowhere was there expressed a clear conception of the present day R.C.V.S. examinations, although the discussions centred around the prospective power of that body to examine. An accurate valuation of the fitness of the present system is essential if such problems as those discussed are to find adequate solution. Before one decides whether or not the R.C.V.S. should examine one must solve the question, "Is that body capable of performing that duty satisfactorily?" Judging from the supplement and from recent letters published in the *Record* it seems that the R.C.V.S. is assumed to be competent "because it always has been." Miss Joshua rightly condemns such blind conservatism (page 140).

Of those who have up-to-date knowledge of the R.C.V.S. examination system (the examination committee R.C.V.S. Council, the examiners, the teachers, and the students) only one group has a living, clear and detailed view of the whole process—I refer to the (senior) students. Their views on this and allied subjects should consequently receive the sincere attention of the profession. Professor McCunn asks for evidence of failings in the present one-portal system. I refer him to the minutes of the meetings held by the students of his own College and also to p. 50 *et seq.* of the 1944 Register of Ms.R.C.V.S. In the sessions 1942-43 and 1943-44, at well attended meetings, the opinion of the then current fourth and fifth year R.V.C. students was sought on this issue. The substantial majority of the students regarded the examination system as most unsatisfactory, and this view I know to be shared by members of the teaching staff. When the subject was referred to the 1944 A.V.S. Conference general agreement with this view was given by delegates from other colleges.

The criticisms made were not directed against the R.C.V.S., or the Court of Examiners, but against the basic method. They were made in a spirit of attempting to increase the efficiency of the system.

The underlying causes of complaint were varied and their importance varied too, but the predominant source of dissatisfaction must be obvious to all who read the Register in which brief details of the examinations are set out. [One wonders how many of the verbose supporters of our present system have read these details since they qualified—and read them with an understanding of present conditions!] All examination systems are necessary evils, but there are degrees in evil! All such systems must be designed to obtain an *adequate* cross-section of the examinee's knowledge, etc. The term "adequate" is capable of varying interpretations, but in judging the R.C.V.S. examinations in this respect, it appears (to me) significant that the examinations of all the institutions and universities with which I have come in contact set a far more extensive value upon "adequate" than do those of the R.C.V.S. Their examinations are more extensive and elaborate than the efforts of our College. Members will appreciate that average students are not satisfied with having the knowledge of a year's work judged by a mere four half-hour questions in the written examinations. The risk of such a small sample proving unrepresentative of his knowledge is very real, and there are far too many students failing when they should not and too many duds, or slackers, slipping through. In examinations conducted by external examiners, as ours are, it is even more important to have full and searching examinations than where internal examiners are enrolled.

I must confess that when I first joined the R.V.C. and heard of the R.C.V.S. examinations I was shocked. In comparing notes with schoolfellows at other institutions I felt no little shame when describing the coarseness of our examination filters. Since then I have had the opportunity of taking some of the B.Sc. (Vet. Sci.) (Lond.) examinations and with all their many faults (which revolve principally around the use of internal examiners) they struck me as being basically more efficient and more fair potentially to candidates and examiners. One did not blame "the system" for one's failures.

I feel confident that the majority of those who come in contact with the R.C.V.S. examinations have little doubt as to the desirability of extending the present process until it becomes efficient. In relation to any such extension one must, however, consider the single portal—the single examination for candidates at five (or more) centres. I think that even in our small profession the numbers of examinees have now reached the point where this single examination is stretched to breaking point. Already examinations stretch over three weeks for some students; already, our teachers tell us, the examiners wade through "writtens" in a conscientious hurry, each marking only a portion of each student's paper; already the "orals" are sinking to the status of "checking up" on examinees with doubtful "writtens"; and already there are too many students one after another, college after college, coming up for orals and practicals. Last year the number of candidates for finals at London was approximately four times the corresponding number 30 years ago (*i.e.*, when many of R.C.V.S. Council were students). Next year, and in succeeding years, the numbers will be even greater and one pities the examiners and examinees alike. In 1915 an examiner could treat a candidate with more interest than now and could grope extensively into his mind if necessary. To-day individualism is changing to mass production and our controls must change with the times. Expansion of the examinations is necessary and if the one-portal system (R.C.V.S. or otherwise) cannot cope with this then we must replace it with a system or systems which can. Failure to do so is to fail in our obligations to the State and the public, to our students and teachers, and to the profession. To me, there appears only one solution—the multi-portal system; each

portal more efficient by virtue of more examiners per candidate; more time for examining each student; more power to internal examiners, etc., etc.

We must fulfil our obligations in this respect, despite a sense of loyalty to a tradition and a fear of the unknown.

Yours faithfully,

"1944 Graduate."

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VETERINARY SCIENCE AND THE STATE

Sir,—A few years ago Lord Bledisloe, on relinquishing his appointment as Governor General of New Zealand, delivered a most laudatory address on the Veterinary Services of that Dominion, which was published *in extenso* in the *Record* and might with advantage be reproduced in your columns in order that our members and the public in Great Britain might learn the benefits to be derived from a beneficent and efficient veterinary service.

It is pleasing to note, therefore, that Lord Bledisloe has again entered the lists as the champion of our cause. In the House of Lords, on April 12th, he is reported by *The Times* to have drawn attention to "the prevalence in Great Britain of (apart from tuberculosis) four bovine diseases—namely, mastitis, contagious abortion, sterility and Johne's disease—involving enormous but avoidable under-production of milk, estimated by leading veterinary experts at 200,000,000 gallons a year, with an annual loss (calculated on a pre-war basis) of at least £20,000,000." He urged that "the problem should be dealt with at the source—namely, animal diseases," and recommended the establishment of a free State Veterinary Service, which, he saitl, was "one of the most remunerative investments the country could embark upon." He also suggested "a compulsory health service for cattle instead of the present voluntary panel scheme."

Lord Bledisloe was ably supported by many other speakers and, although they approached the subject from different angles, there were, as far as I can see, no dissentients. Lord Cranworth said "the veterinary services should be increased and made more readily available," and the Earl of Iveagh pointed out that "one of the most urgent needs was for better training facilities for veterinarians." Lord Addison said amid cheers "At present there is not a sufficient supply of veterinary surgeons. An adequate supply of properly trained veterinary surgeons would not be obtained unless a great extension of our veterinary colleges was undertaken and proper remuneration given to their staffs." Even the Duke of Norfolk, as Joint Parliamentary Secretary, Ministry of Agriculture, admitted that "it might be some time before they could get the number of veterinary surgeons required," and added that "it was hoped that legislation would be introduced to carry out improvements in veterinary education." He confessed "They were fully alive to the enormous amount of disease and the loss sustained through it," and said "it was the desire of the Government to see the diseases reduced as far as possible." No doubt a detailed report of the debate will appear in the *Record* in due course.*

Thus, at long last, the value of Veterinary Science to the State and the need for an efficient Veterinary Service are recognised. But, unfortunately, there are not sufficient properly qualified veterinary surgeons to perform the many and varied duties which come within the scope of a State Veterinary Service. In 1938 there were less than 3,000 qualified veterinary surgeons to supervise 40,000,000 head of stock on 440,000 farms—to say nothing of the inspection of animal products. The present-day figures are unknown. The Prime Minister himself has stated that agriculture must be restored, but the pastoral industry is the key to agriculture and must first be resuscitated and placed upon a sound foundation, that is, a foundation of good health. This can only be accomplished by an efficient veterinary service because, as the Earl of Listowel rightly said, "an appreciable portion of our dairy cattle are infected with disease." As every veterinary surgeon and every stock-owner who will look the facts in the face knows, our flocks and herds are ravaged by innumerable diseases, some of which are known to science and can be controlled, but many others are not understood and must remain a constant menace.

Therefore, a considerable increase in the number of properly qualified veterinary surgeons is urgently necessary. But where are they to come from? Whether by "requiring" the R.C.V.S. to register a large number of university graduates sufficient veterinarians of practical ability would be forthcoming: or whether the admission to our ranks of a large number of unqualified practitioners of exemplary conduct for the past seven years would supply the scientific knowledge which modern veterinary science and art requires: or whether the squeezing out of existing, that is, established, veterinary practitioners and imposing an army of bureaucrats in their place, would be conducive to the enthusiasm necessary for efficiency in a State service, are problems—very urgent problems—which must be solved by the Council of the Royal College of Veterinary Surgeons about to be elected. May I venture to suggest that you, Sir, should throw your columns open, wide open, for a full, free and frank discussion of these all-important subjects before we, the rank and file of the profession, be called upon to elect our representatives?

Yours faithfully,

Silver Birches, Little Common, Sussex. Ll. E. W. Bevan.

April 14th, 1945.

* The extended report was published in our last issue.—*Editor.*

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THE PRACTICE OF DOCKING

Sir,—In the Report of the Committee on Veterinary Practice by Unregistered Persons in *The Veterinary Record* for April 7th, I notice that the docking of the tail of dogs before the opening of eyes is an operation to be permitted to unregistered practitioners.

I have long considered it to be a shameful thing that members of our profession should assist in perpetuating this senseless and barbaric rite of mutilating young creatures for the sake of vain fashion. That it is now suggested that the victims should be turned over to the tender mercies of anyone with a carving knife is but one more indication of the general bluntening of conscience manifest on all sides.

Docking of tails, both of puppies and horses, should be prohibited by law, and the veterinary profession should throw its 100 per cent. weight into backing any attempt at this modification of our legislation. This cannot be considered a controversial topic by any who wish to see the rights of animals protected, and any others should not be in the profession.

Yours faithfully,

R.A.F., Wigsley, nr. Newark, Notts. F. B. Edwards, M.R.C.V.S.

April 17th, 1945.

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FORCES RELEASE OF VETERINARY PERSONNEL

Sir,—The rapid progress of the war in Europe moves me to pass comment on the paragraph in *The Veterinary Record* of March 31st regarding the concern felt by the Hampshire Branch of the N.F.U. about the present inadequate numbers of veterinary surgeons, and also the continued depletion by calling up for the Army. I would like to point out that there are a considerable number of veterinary students in the Army and R.A.F.; most of these could be replaced. With regard to the R.A.V.C., the job of a dresser is not specialised, in the sense that there is no test of ability qualifying the man for extra pay (farriers are in a different category).

If the Minister concerned considers agriculture to be a key industry, these men should be released when the time comes under Class B.

Yours faithfully,

Final Year Student, R.A.V.C., C.M.F.

April 15th, 1945.

DISEASES OF ANIMALS ACTS, 1894 TO 1937, AND AGRICULTURE ACT, 1937 (PART IV).

Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period	Anthrax	Foot-and-mouth	Parasitic Mange*	Sheep Scab	Swine Fever
Mar. 16th to 31st, 1945...	7	8	—	4	48
Corresponding period in—					
1944 ...	9	2	1	6	30
1943 ...	15	—	1	11	36
1942 ...	14	—	10	4	23
Total Jan. 1st to Mar. 31, 1945	34	59	3	33	277
Corresponding period in—					
1944 ...	63	15	5	56	152
1943 ...	91	10	4	85	139
1942 ..	81	11	23	91	110

Note.—The figures for the current year are approximate only.

* Excluding outbreaks in Army Horses.

Tuberculosis (Attested Herds) Schemes

The number of Attested Herds, *i.e.*, herds officially certified as free from Tuberculosis as at March 31st, 1945, was as follows:—

England	Wales	Scotland	Total (Great Britain)
4,573	8,500	4,541	17,614